IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	
Li *et al.*	Art Unit: 1646
Appl. No.: 08/852,824	Examiner: Basi, N.
Filed: May 7, 1997	Atty. Docket: 1488.1220000/EKS/EJH
For: **Human G-Protein Coupled Receptors**	

Declaration of Steven M. Ruben Under 37 C.F.R. § 1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

1. I, Steven M. Ruben, hereby declare and state as follows:

2. I am a named inventor of the captioned application, which is assigned to Human Genome Sciences, Inc. (HGS), and I am presently employed by HGS. The work described below was done by myself, under my supervision, or as part of a collaborative research effort with other individuals at HGS.

Human Epstein Barr Virus-Induced G-Protein Coupled Receptor-2 (EBI-2)

3. We obtained a cDNA clone encoding a human Epstein Barr virus-induced G-protein coupled receptor-2 (EBI-2) by screening a human hippocampus cDNA library. This clone was designated HHPGS02. We determined nucleotide sequence information for the HHPGS02 clone, as described below, using sequencing methods which were routine and publicly available as of the May 7, 1997 filing date of the present application. The HHPGS02 clone that we obtained this sequence information from was deposited with the American Type Culture

Collection (ATCC) on April 28, 1997 and was given ATCC Accession No. 209003. (*See* Attachment A.)

4. Evidence that the human HHPGS02 cDNA was deposited at the ATCC as Accession No. 209003 is provided by comparing the ATCC Deposit Receipt (Attachment A) with the information provided in the IRIS notebook page (entitled "Sequence Worksheet") included herewith as the first page of Attachment B.[1] The section of the page entitled "Sequence Information" corresponds clone HHPGS02[2] with the "HGS Code," 405439. HGS Code 405439 represents a particular sequence entry in IRIS for cDNA clone HHPGS02. HGS Code 405439 appears as the identifier on the ATCC deposit receipt. (*See* Attachment A.) This indicates that the clone used to obtain the sequence information of HGS Code 405439 was deposited. In other words, even though, as explained below, SEQ ID NO:1 and SEQ ID NO:2 in the Sequence Listing of the present application as originally filed, had typographical errors due to attorney error, the human HHPGS02 cDNA clone used to obtain the original, correct sequence data was deposited at the ATCC.

5. Attachment B provides four pages of data from the IRIS electronic notebook which shows the sequencing results of the human EBI-2 cDNA clone *(i.e.*, HHPGS02). The HHPGS02 sequence was obtained using a 373 Automated DNA sequencer (Applied Biosystems, Inc.). Sequencing accuracy using this method is predicted to be greater than 97%.

6. The information obtained from the HHPGS02 sequencing run differs from the Sequence Listing currently on file in the present application at four positions. In particular, SEQ

---

[1]IRIS is an electronic notebook used by HGS scientists to enter and maintain sequence data.

[2]The "XX" designation added to the 7-character clone ID on the IRIS Notebook pages, e.g., HHPGS02, merely indicates that the sequence of that clone is full-length.

ID NO:1 contains typographical errors at the following nucleotide positions: position 242, which should be A rather than T; position 266, which should be C rather than A; position 1870 (in the 3' untranslated region), where a T should be deleted, and position 2206, where an N should be deleted. These typographical errors in the nucleotide sequence result in the following errors to the encoded amino acid sequence depicted as SEQ IDNO:2: an isoleucine at position 6 should be replaced with an asparagine, and an asparagine at position 14 should be replaced with a threonine. Both of these changes are reflected in the HHPGS02 amino acid sequence data shown on the third and fourth pages of Attachment B, as well as in an amino acid alignment originally filed with the present application as Figure 2.

7. I believe that the actual nucleotide sequence of the human HHPGS02 cDNA clone is the same as that originally entered in the IRIS notebook.

8. I am of the opinion that the correct EBI-2 nucleotide and amino acid sequences would have been apparent to one skilled in the art in possession of ATCC Deposit No. 209003 and the data from the HHPGS02 sequencing run, as of the May 7, 1997 filing date of the present application. This is so because the correct EBI-2 coding sequence can be readily determined from the deposited clone and methods for sequencing this clone were routine in the art in May of 1997.

Human Endothelium Differentiaion Gene-1-Like (EDG-1-Like) G-Protein Coupled Receptor

9. We obtained a cDNA clone encoding a human endothelium differentiation gene-1-like (EDG-1-like) G-protein coupled receptor by screening a cDNA library derived from human activated neutrophils. This clone was designated HNFDL69. We determined nucleotide sequence information for the HNFDL69 clone, as described below, using sequencing methods which were routine and publicly available as of the May 7, 1997 filing date of the present application. The

HNFDL69 clone that we obtained this sequence information from was deposited with the American Type Culture Collection (ATCC) on April 28, 1997 and was given ATCC Accession No. 209004 (*See* Attachment A.)

10. Evidence that the human HNFDL69 cDNA was deposited at the ATCC as Accession No. 209004 is provided by comparing the ATCC Deposit Receipt (Attachment A) with the information provided in the IRIS notebook page (entitled "Sequence Worksheet") included herewith as the first page of Attachment C. The section of the page entitled "Sequence Information" corresponds clone HNFDL69 with the "HGS Code" 563238. HGS Code 563238, represents a particular sequence entry in IRIS for cDNA clone, HNFDL69. HGS code 563238 appears as the identifier on the ATCC deposit receipt. (*See* Attachment A.) This indicates that the clone used to obtain the sequence information of HGS Code 563238 was deposited. In other words, even though, as explained below, SEQ ID NO:3 and SEQ ID NO:4 of the Sequence Listing in the present application as originally filed, had typographical errors due to attorney error, the human HNFDL69 cDNA clone used to obtain the original, correct sequence data was deposited at the ATCC.

11. Attachment C provides three pages of data from the IRIS electronic notebook which shows the sequencing results of the human EDG-1-like cDNA clone *(i.e.*, HNFDL69). The HNFDL69 sequence was obtained using a 373 Automated DNA sequencer (Applied Biosystems, Inc.). Sequencing accuracy using this method is predicted to be greater than 97%.

12. The information obtained from the HNFDL69 nucleotide sequencing run differs from the Sequence Listing currently on file in the present application in two positions. In particular, SEQ ID NO:3 contains typographical errors at the following nucleotide positions: position 828, which should be T rather than C; and position 831, which should be T rather than

A. Note that this latter typographical error introduced a stop codon into the open reading frame, causing the amino acid sequence, as translated from the sequence with the typographical error, to stop at position 260. Accordingly, these typographical errors in the nucleotide sequence result in the following errors to the encoded amino acid sequence depicted as SEQ IDNO:4: the serine at position 260 should be replaced with phenylalanine, and the translation should continue to amino acid 384, as depicted in the original translation provided on the third page of Attachment C. SEQ ID NO:4 further contains typographical errors at the following amino acid positions: position 191, which should be Asp rather than Asn, position 202, which should be Lys rather than Arg, and position 204, which should be Tyr rather than Thr. In addition, the translation should start with the Met at position 1, rather than the Ala at position -16. Both of the nucleotide sequence changes are reflected in the HNFDL69 nucleotide sequence data shown on the first and second pages of Attachment C, and the amino acid sequence changes are reflected in the HNFDL69 amino acid sequence data shown on the third page of Attachment C. In addition, The amino acid sequence data is reflected in an amino acid alignment originally filed with the present application as Figure 4, except for five residues at the 3' end of the polypeptide. These latter five residues are not in the alignment simply because they did not align with the second sequence in Figure 4, i.e., SEQ ID NO:18.

13. I believe that the actual nucleotide sequence of the human HNFDL69 cDNA clone is the same as that originally entered in the IRIS notebook.

14. I am of the opinion that the correct EDG-1-like nucleotide and amino acid sequences would have been apparent to one skilled in the art in possession of ATCC Deposit No. 209004 and the data from the HNFDL69 sequencing run, as of the May 7, 1997 filing date of the present application. This is so because the correct EDG-1-like coding sequence can be readily

determined from the deposited clone and methods for sequencing this clone were routine in the art in May of 1997.

15. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the Unites States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereupon.

7/15/99
Date

Steven M. Ruben

FILE COPY

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	
LI *et al.*	Art Unit: 1646
Appl. No. 08/852,824	Examiner: Basi, N.
Filed: May 7, 1997	Atty. Docket: 1488.1220000/EKS/HCC
For: **Human G-Protein Coupled Receptors**	

Associate Power of Attorney

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

The undersigned, James H. Davis, attorney of record in the present application, hereby appoints Jorge A. Goldstein, Registration No. 29,021 and Eric K. Steffe, Registration No. 36,688, of the firm **STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.**, 1100 New York Avenue, N.W., Suite 600, Washington, D.C. 20005-3934 as Associate Attorney with full power to prosecute the above-identified application. All correspondence should be directed to said firm.

Respectfully submitted,

James H. Davis
Attorney of Record
Registration No. 40,582

Date: 5/6/99

9410 Key West Avenue
Rockville, MD 20850
(301) 309 8504

P:\USERS\HCARLSON\1488\1220000\pto\assoc.poa
SKGF Rev 1/27/98 dcw

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

HUMAN G-PROTEIN COUPLED RECEPTORS

the specification of which [ ] is attached hereto or [x] was filed on May 7, 1997 as Application Serial No. 08/852,824 and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed. Prior Foreign Application(s):

			Priority Claimed	
			Yes	No
(Number)	(Country)	(Day/Month/Year Filed)		

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: John N. Bain (Reg. No. 18,651); John G. Gilfillan, III (Reg. No. 22,746); Elliot M. Olstein (Reg. No. 24,025); Raymond J. Lillie (Reg. No. 31,778); Charles J. Herron (Reg. No. 28,019); Gregory Ferraro (Reg. No. 36,134), William Squire (Reg. No. 25,378) of Carella, Byrne, Bain, Gilfillan, Cecchi, Stewart & Olstein, 6 Becker Farm Road, Roseland, New Jersey, 07068, Robert H. Benson (Reg. No. 30, 446) and Larry S. Millstein (Reg. No. 34,679) of Human Genome Sciences, Inc. 9410 Key West Avenue, Rockville, Maryland, 20878.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first joint inventor: **YI LI**
Inventor's signature: _____ Date: 12/17/97
Residence: 1247 Lakeside Drive, Sunnyvale, California 94086 Citizenship: China
Post Office Address: Same

Full name of second joint inventor: **STEVEN M. RUBEN**
Inventor's signature: _____ Date: 12/22/97
Residence: 18528 Heritage Hills Drive, Olney, Maryland 30823 Citizenship: USA
Post Office Address: Same

Docket No. PF351.SKB
CB #: 325800-600

CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI, STEWART & OLSTEIN
6 Becker Farm Road - Roseland, NJ 07068 - (201) 994-1700

steg/ipopen/app/pf351po/dec/cll

DO NOT FORWARD
TO ASSIGNMENT BRANCH
NOT FOR RECORDATION

ASSIGNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, each of the undersigned, **Yi Li and Steven M. Ruben**, hereby sell(s), assign(s) and transfer(s) to **Human Genome Sciences, Inc.** ("Assignee") having a place of business at 9410 Key West Avenue, Rockville, MD 20850, its successors, assigns and legal representatives, his entire right, title and interest for the United States and all other countries, in and to the improvements(s) known as:

HUMAN G-PROTEIN COUPLED RECEPTORS

also known as United States Application Serial No. 08/852,824, filed May. 7, 1997, and/or executed on even date herewith and is entitled:

HUMAN G-PROTEIN COUPLED RECEPTORS

and in and to said application and all divisional, continuing, substitute, renewal, reissue and all other applications for Letters Patent which have been or shall be filed in the United States and all other countries on any of said improvements, and in and to all original and reissued patents which have been or shall be issued in the United States and all other countries on said improvements (hereinafter collectively, the "Improvements".

The undersigned further agrees that said Assignee may apply for and receive Letters Patent for said Improvements in its own name; and, when requested, without charge to but at the expense of Assignee, its successors, assigns and legal representatives, to carry out in good faith the intent and purpose of this assignment, the undersigned will execute all divisional, continuing, substitute, renewal, reissue and all other patent applications on all such Improvements; execute all rightful oaths, assignments, powers of attorney and other papers; communicate to said Assignee, its successors, assigns and representatives all facts known to the undersigned relating to said improvements and the history thereof; and do everything possible which said Assignee, its successors, assigns or representatives shall consider desirable for aiding in securing and maintaining proper patent protection for said improvements and for vesting title to said improvements and all applications for patent and all patents on said improvements in Assignee, its successors, assigns and representatives.

The undersigned hereby represents and warrants to Assignee, its successors, assigns and representatives that no assignment, grant, mortgage, license or other right or agreement affecting the rights and property herein conveyed has been made to others by the undersigned and that full right to convey the same as expressed herein is possessed by the undersigned.

The undersigned hereby grants power to John N. Bain (Reg. No. 18,651); John G. Gilfillan, III (Reg. No. 22,746); Elliot M. Olstein (Reg. No. 24,025); Raymond J. Lillie (Reg. No. 31,778); Charles J. Herron (Reg. No. 28,019); William Squire (Reg. No. 25,378) of Carella, Byrne, Bain, Gilfillan, Cecchi, Stewart & Olstein, 6 Becker Farm Road, Roseland, New Jersey, and Robert H. Benson (Reg. No. 30,446); James H. Davis (Reg. No. 40,582); A. Anders Brookes (Reg. No. 30,373) of Human Genome Sciences, Inc., 9410 Key West Avenue, Rockville, Maryland, 20850 to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document. Address correspondence and telephone calls to J.G. Mullins c/o of Carella, Byrne, Bain, Gilfillan, Cecchi, Stewart & Olstein, 6 Becker Farm, Road, Roseland, New Jersey 07068.

IN WITNESS WHEREOF, this Assignment is executed by the undersigned on the date(s) opposite their signature(s):

Inventor's Signature: _____ Date: 12/17/97
Yi Li

STATE OF CALIFORNIA, COUNTY OF SANTA CLARA SS.: _____

Before me this 17TH day of DECEMBER, 1997 personally appeared the above named individual(s), to me known to be the person(s) who are described in and who executed the foregoing assignment instrument and acknowledgeed to me that they executed the same of their own free will for the purpose therein expressed.

DONALD M. JOHNSON
COMM. # 1081092
NOTARY PUBLIC — CALIFORNIA
COUNTY OF SANTA CLARA
Comm. Exp. Dec. 25, 1999

Notary Public

Inventor's Signature: _____ Date: 12/8/97

Steven M. Ruben

STATE OF Maryland, COUNTY OF Montgomery SS.: _____

Before me this 18th day of December, 1997 personally appeared the above named individual(s), to me known to be the person(s) who are described in and who executed the foregoing assignment instrument and acknowledgeed to me that they executed the same of their own free will for the purpose therein expressed.

_____
Notary Public
MONICA PONCE
NOTARY PUBLIC STATE OF MARYLAND
My Commission Expires February 20 20[illegible]

Docket No. PF159P1

CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI, STEWART & OLSTEIN
6 Becker Farm Road - Roseland, NJ 07068 - (201) 994-1700

steg.legal/app/151P1/oathass/cll

DO NOT FORWARD
TO ASSIGNMENT BRANCH
NOT FOR RECORDATION